

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): Y. Diao et al.

Docket No.: YOR920030088US1

Serial No.: 10/648,179

Filing Date: August 26, 2003

Group: 2123

Examiner: Juan Carlos Ochoa

Title: Methods and Systems for Model-Based
Management Using Abstract Models

REPLY BRIEF

Commissioner for Patents
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Sir:

Appellants respectfully provide the following comments for consideration by the Board of Patent Appeals and Interferences in response to the Examiner's Answer dated March 3, 2009. Appellants thank Examiner Ochoa for elaborating on the rationale for his rejections of claims 1-33.

ARGUMENT

Claims 1-5, 7-14, 16-23, 25-29 and 31-33 (Pages 9-17 of the Answer)

With regard to the §102 rejection, Appellants initially note that the Federal Circuit has recently reiterated that “unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. §102.” *Net MoneyIN Inc. v. VeriSign Inc.*, 545 F.3d 1359, 1369, 88 USPQ2d 1751, 1760 (Fed. Cir. 2008).

On pages 9-15 of the Answer, the Examiner repeatedly asserts that the Appellants are arguing “features which are not expressed in the claims or clearly defined in the Application description. Examiner is not allowed to read into the claims express limitations and especially to implied limitations contained in the Application description.” See the Answer at page 14, last paragraph.

Appellants respectfully note that, where a definition is provided by the applicant for a term, either explicitly or by implication (i.e., according to the usage of the term in the context in the specification), that definition will control interpretation of the term as it is used in the claim. See *Vitronics Corp. v. Conceptronic Inc.*, 90 F.3d 1576, 1583, 39 USPQ2d 1573, 1577 (Fed. Cir. 1996); see generally *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) (*en banc*). Thus, Appellants are not attempting to read limitations from the specification into the claims, but rather are interpreting the claim in light of the specification. See, e.g., *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1572, 7 USPQ2d 1057, 1065 (Fed. Cir. 1988) (If “words that are used in the claims [are] defined in the specification,” these definitions from the specification “must be imported into the claims to give meaning to disputed terms.”) (emphasis added)

That said, Appellants maintain that the Examiner continues to mischaracterize the Appellants’ arguments. Specifically, the Examiner asserts that “Appellant’s basis for most arguments stem from alleged definitions of several terms in the claims.” See the Answer at page 9, last paragraph. Appellants respectfully disagree.

Rather, Appellants maintain that even if one were to accept the Examiner’s argument that the neural prediction agent disclosed by Bigus could somehow be considered a resource abstract model, and even further assuming that the system model disclosed by Bigus could be analogized to the recited model representative of the resource (see the Answer at page 15), Bigus still fails to meet the limitations explicitly recited in claim 1.

Independent claim 1 is directed to a method of constructing a model representative of a resource for use in managing a service associated with the resource, comprising the steps of associating a resource abstract model with the resource, wherein the resource abstract model is configured to automatically determine a set of resource metrics to be used to construct a model

representative of the resource such that a reduced set of resource metrics is considered; and constructing the model representative of the resource based on the reduced set of resource metrics obtained in accordance with the resource abstract model.

Bigus at fifth page, last paragraph (cited on page 15, last paragraph, of the Answer) does in fact state that “the system model is obtained by training a neural network based on measured values of the controlled target over a wide range of workloads and tuning controls.” However, there is simply no teaching or suggestion of a technique wherein the neural prediction agent is configured to automatically determine a set of resource metrics to be used to construct a system model such that a reduced set of resource metrics is considered. Rather, the neural prediction agent is used to determine service level outputs for varying inputs of a fixed set of metrics.

See, for example, Bigus at fifth page, last paragraph: “the system model is an abstraction of the target that outputs service levels given inputs for workload, configuration, and settings of tuning controls.” See also FIG. 3 of Bigus (showing that the system model outputs service level metrics based on workload metrics, configuration metrics, and tuning control settings). See generally the last two paragraphs of the first page of Bigus (emphasis in original):

Determining appropriate settings of tuning controls requires having observations of the target. Herein, there are three classes of metrics of interest: (1) **configuration metrics** that describe target capacities (e.g., line speeds, processor speeds, and memory sizes) and other performance related features that are not changed by adjusting tuning control; (2) **workload metrics** that characterize the load on the target, such as arrival rates and service times; and (3) **service level metrics** that characterize the performance delivered, such as response times, queue lengths, and throughputs.

To determine the effect of tuning adjustments, there must be a model that relates configuration information, workload levels, and the settings of tuning controls to the service levels that are delivered. We refer to this as the target system model, or just **system model**.

As such, Bigus fails to teach or suggest the limitations explicitly recited in claim 1 wherein the resource abstract model is configured to automatically determine a set of resource metrics to be used to construct a model representative of the resource such that a reduced set of resource metrics is

considered; and constructing the model representative of the resource based on the reduced set of resource metrics obtained in accordance with the resource abstract model. Rather, Bigus teaches a technique in which the system model obtained using the neural prediction agent has a fixed set of metrics associated therewith.

Claims 6, 15, 24 and 30 (pages 17-19 of the Answer)

Appellants again note that dependent claim 6 includes a limitation directed to obtaining a topology of one or more resources used to deliver one or more services associated with the one or more service level agreements, including the resource for which the model is being constructed, for use in constructing the model representative of the resource. As discussed in the specification at page 7, lines 8-11, a topology refers to the minimal set of resources that may be used in service delivery. For example, as described in the specification at page 15, lines 1-3, a service topology for an exemplary service level agreement may be a single computer running DB2.

The Examiner again argues that this limitation of claim 6 is taught by Bigus, page 18, last paragraph, which discusses “scheduling different classes of customers on a set of distributed, heterogeneous servers to globally minimize a linear function of the per-class mean response times.” However, the relied-upon portion of Bigus does not disclose any minimal set of resources that may be used in service delivery and the flows between them; rather, it is directed to optimizing scheduling of customers on a predetermined set of server resources so as to minimize a response time metric. In other words, there is no teaching or suggestion that the “set of distributed heterogeneous servers” is a minimal set of resources that may be used in service delivery.

Accordingly, Appellants believe that the relied-upon portion of Bigus fails to disclose at least the limitation of dependent claim 6 directed to obtaining a topology of one or more resources used to deliver one or more services associated with the one or more service level agreements. Dependent claims 15, 24 and 30 include limitations similar to those recited in claim 6, and are hence believed patentable for reasons similar to those identified above.

In view of the above, Appellants respectfully maintain that claims 1-33 are in condition for allowance, and again request reversal of the §102 rejection.

Respectfully submitted,

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Date: May 4, 2009

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